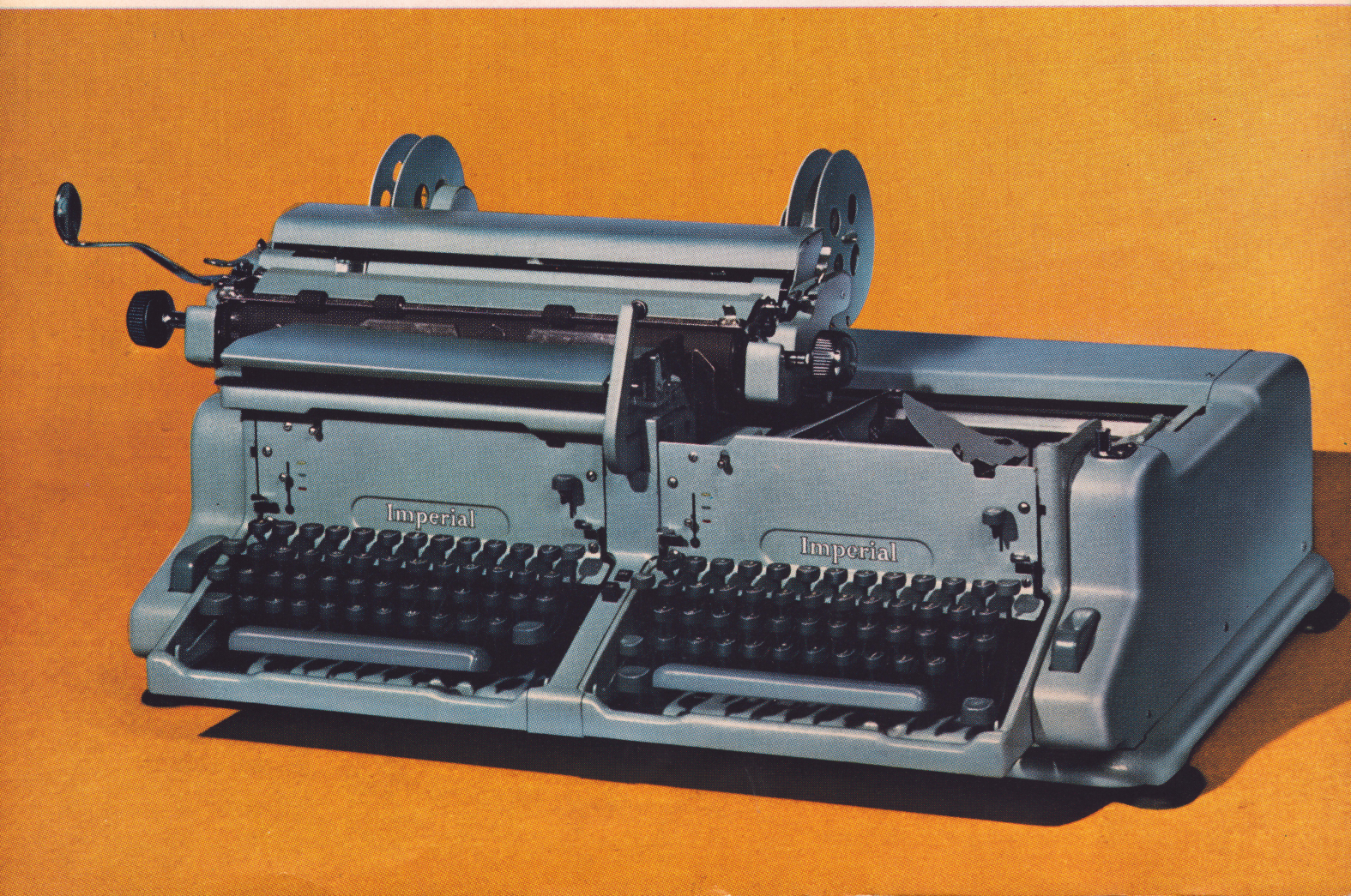
By Appointment to
HM The Queen
Typewriter
Manufacturers

IMPERIAL

Typewriter Company Limited Leicester England

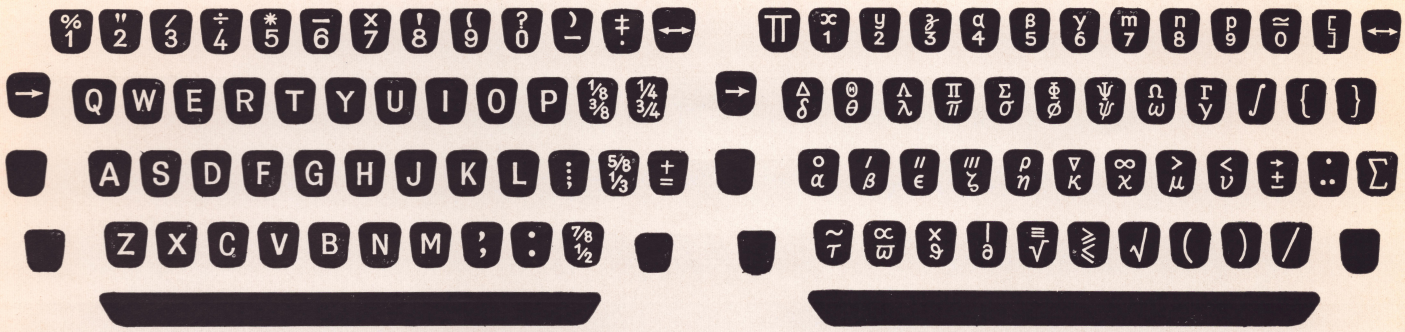
DUAL-UNIT 458 (with power transfer)

To meet the needs of technical, educational and scientific organisations the Imperial Dual-Unit typewriter has been designed primarily for typing mathematical formulae and such data, where a keyboard of more than the normal number of characters is required. It consists of two units built side by side with a single carriage which may easily be transferred from unit to unit, thus, not only does it avoid the necessity of removing the typewritten matter from the carriage, but ensures smooth integration of narrative symbols in perfect register.
The Imperial dual-unit 458, is fitted with a power drive which enables the transfer of the carriage to be accomplished by the touch of a key. This machine can be supplied with a choice of type styles on the textual keyboard and a very large range of symbols on the other keyboard. All dual-unit typewriters have keyboards to suit individual requirements. There is no standard keyboard, as almost every customer has different needs.



1 carriage-2 keyboards

ENGLISH | MATHEMATICAL



The specimen keyboard shown above indicates that the left hand unit has an orthodox keyboard and the right hand comprises of mathematical characters. It will be appreciated that this is a specimen. The choice and layout of various characters are to each customer's specific requirements.

SPECIMEN OF WORK
A page of matter typed on a 10 characters per inch dual-unit typewriter can be reduced photographically as in this example, for multiple reproduction.

The electromagnetic field equations become:

$$\frac{\partial}{\partial h} B_z = \frac{4\pi}{c} e_+ \dot{\phi}$$

$$\frac{\partial}{\partial h} r B_\phi = -\frac{4\pi}{c} e_+ \dot{z}$$

$$\frac{\partial}{\partial h} E_z = \frac{1}{c}\left\{\frac{1}{nr}\frac{\partial B_\phi}{\partial t} - \dot{r}\frac{\partial B}{\partial h}\right\}$$

$$\frac{\partial}{\partial h} r E_\phi = \frac{1}{c}\left\{-\frac{1}{n}\frac{\partial B_z}{\partial t} + r\dot{r}\frac{\partial B_z}{\partial h}\right\}$$

and the equation of continuity becomes

$$-\frac{\partial n}{\partial t} = n^2 \frac{\partial}{\partial h}(r\dot{r})$$

This is the time derivation of equation (12) and therefore superfluous, apart from checking the derivation of the Lagrangian co-ordinate.

It is convenient at this stage to express all variables in a normalised form, as follows:

$$r_n = r/r_o \;,\; \phi_n = \phi/\phi_o \;,\; z_n = z/z_o$$
$$t_n = t/t_o \;,\; h_n = h/h_o \;,\; n'_n = n'/n'_o$$

and

$$B_{\phi^n} = B_\phi/B_o \;,\; B_{z^n} = B_z/B_o$$
$$E_{\phi^n} = E_\phi/E_o \quad E_{z^n} = E_z/E_o.$$

Specification

Two 46 key, 92-character keyboards = 184 characters.

Shift key and shift lock with left and right hand release.

Segment shift.

Back space and margin release keys.

Hand-set margins.

Tabulator.

Five variations of regular line-spacing.

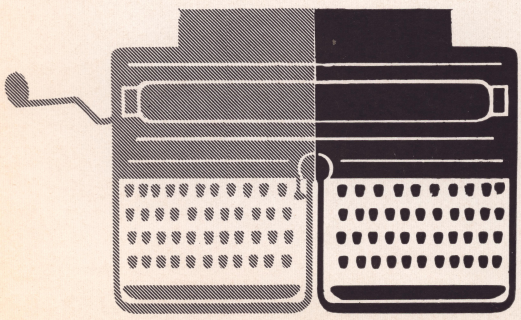
Automatic ribbon reverse.

Ribbon colour change and stencil switch.

Line drawing device.

Carbon ribbon (optional extra). For offset Litho reproduction and other special requirements.

carriage sizes, dimensions, weights



Overall base dimensions	Weight
28″ × 23½″ (71 × 59.5 Cms)	125 lb. 567 kgs.

Sizes Available	Maximum Width of Paper		Maximum Length of Writing Line	
	Inches	Cms	Inches	Cms
13″	11⅝	29.5	10½	26.7
15″	14½	36.8	13½	34
18″	18	45.7	17	43

Imperial Typewriter Company Limited

Printed in England

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